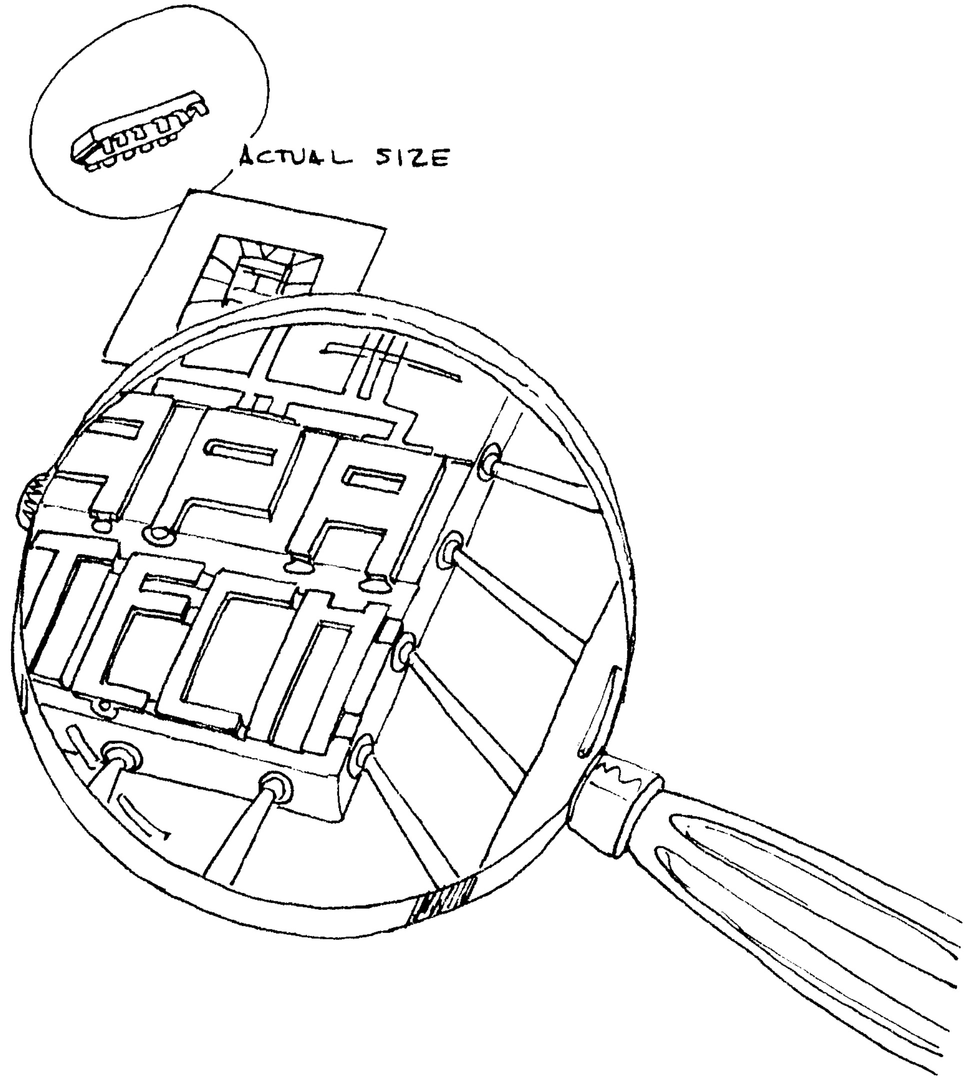

SPECIAL
MICRO
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October 1983 APA-TECH #27 The 555 Times #27

The Amateur Press Association for and by
the members of General Technics

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TABLE OF CONTENTS

Cover/ Marty Franz 1
The 555 Times/ GTB 2
Transporter Topics #22/ Rod Smith 4
How I Spent My Summer Vacation/ Rod Smith 2
Businessmen They Drink My Wine/ Dick Smith 2
Space Junk/ Greg Ruffa 10
Dear B$/ Renee Sieber 2
PAGE COUNT 23

PREMAILING TO APA-TECH #27

I Guess We'll Try it One More Time/ Donna Struwe 6
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THE CHAIR WAXES MINUTELY PHILOSOPHICAL

Well, it's a small issue, but there are large issues and small ones. We'll just have to see what happens. I waited a little longer than usual for more contributions to come which is why this issue is tardy.

Covers count for minac. That means if you contribute a cover you don't have to write for four months.

I'm checking into a savings account for Apa-Tech. At my bank if your account falls below $200 you are charged $.50 a month for saving money there. And for those of you who are interested in what dues are spent on, it costs me $3-$4.50 an issue just for repro (What Happens to the Money #1 from HR Block.)

That's all f.f.f.fen

CTB

TRANSPORTER TOPICS

22
22

Rodford E. Smith
922 Belvoir Dr.
Frankfort, Ky. 40601
(502) 223-2119

Sob! Please! Its not my fault! I got back from vacation with my mother and her parents just a couple of days before deadline for issue 25. I was all prepared to contribute a humongus double issue for #26 as pennance. Then I caught the bug. It is going around Frankfort like the plague. After the first few days you don't feel particularly bad, just tired. I mean really tired. All you want to do is sleep. I tried, honestly, to get this done a week ago, but broke out into a sweat after typing just the first few lines of my trip report. That, by the way, I have finished and placed at the end of this. I will have to mail this on Monday, the 10th. For one I am hoping that the collators will be slow.

Mailing Comments For APA Tech #25:

Everyone: About NASA budgeting. Okay, guess I blew this one. All I knew was reports that Congress had cut sush and such amount from the request.

Donna: Concerning the problem of what to do with money left after someone leaves, I prefeer the second proposal. Since most people who write for APA Tech are convention-goers it woild benefit them at least slightly, and might encourage other members to contribute.

Congratulations on the pickup in Isher's finances. I hope it continues.

As far as I am concerned ther is no controversy about gun ownership. Is Tullio's rifle acoped, and is it bolt, pump, lever or semi-auto?

Greg: Yeah, I called to hear the shuttle about once a day.

Quint Sing: The B36 J could travel 6800 miles with 10,000lb. of bombs. I believe this is unrefuelled range. With ~~arel~~ aireal refueling it could stay up for forty hours or more and fly 10,000 miles+.

Jamie: Re. steroes. Okay, I was under the impression that the limiting factor in sound reproduction was the disk/needle interface.

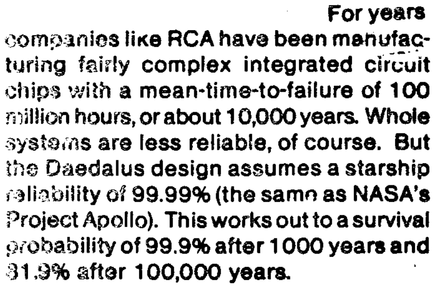
Re. vehicles. Part of this is shortcutting fot the sake of advancing the plot (in Return of the Jedi), but not all of it. We are dealing with a very old culture here, and vehicle controls were probably standardized into a few general types a long time ago. Also, just because we haven't seen these flycycles before dosen't mean that they are uncommon. Luke may have flown these several times before.

Al: Sounds like you're living the good life. Homemade soap?!

I know a little about sedimentation, having taken a couple of soils courses in college. Our "field trip" involved backing the truck with the giant auger on ir to the edge of the parking lot pavement and digging a hole in the lawn.

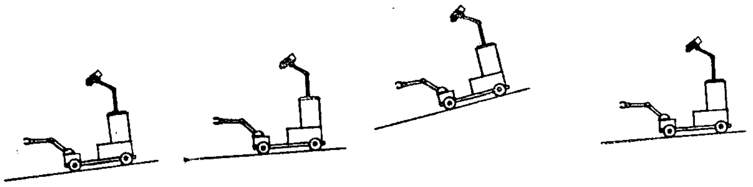
5Mhz acoustic rangefinder? Uh, what is the wavelength? That sounds awfully high for sound, even in water.

Bill H.: Your book-carrying scheme is just like the way I stack my unread books. And people told me that an education in engineering wasn't of much practical use around the house.



For years companies like RCA have been manufacturing fairly complex integrated circuit chips with a mean-time-to-failure of 100 million hours, or about 10,000 years. Whole systems are less reliable, of course. But the Daedalus design assumes a starship reliability of 99.99% (the samn as NASA's Project Apollo). This works out to a survival probability of 99.9% after 1000 years and 31.9% after 100,000 years.

Remember this
question?



In Perry county, Ky., there are communities named Typo, Dice, Ary, Avawam and Krypton. You don't mess with people from the last of these.

Bell county has Tejay, Meldrum, Arjay. Harlan has Crummies.

Martha Lane Collins won the democratic primary here. She will probably be our next governor. She is currently Lieutennant Governor, and her living quarters, the Lieutennant Governor's Mansion (also known as the Old Governor's Mansion) is right behind the building where I work. We share the parking lot with some of the mansion staff.

The local ham radio club was on a tour of the Disaster and Emergency Services building here in frankfort. This is the central coordinating agency for KY. energency relief efforts. They have an extensive communications senter which is inside a giant Faraday shield to protect against EMP in case of nuclear war. They have reserves of fuel, food and other supplies, along with an air filter system. One interesting note. While we were there a call came in from Cincinnatti that an Air Canada plane was making an emergency landing with an onboard fire. The first report was that all passengers were dead. Yes, we were among the first people to hear about the disaster.

Discrepancies

I became somewhat disillusioned with Long John Silvers several years ago when they began calling their fish and chips "Fish and Fries." You ask for the meal by its proper name and they politely explain that they don't have potato chips.

Mailing Comments For APA Tech #26

Travels in Known Space: Don't cut your geology lectures. I like the subject.

The novelization of "Forbidden Planet" is very different from the movie. The major plot milestones are the same but the characterizations and soem of the plot are changed. I didn't like it.

Wino Businessman: Hello, Dick! Nice seeing you, though briefly, at Constellation.Yes, I would be interested in an environmental job, and even have some water quality training. There is already a "Survivalist Game" in Ky. I have seen posters advertising it in the State Office Building (affectionately known as the "S.O.B."). I am not interested in the game. If civilization does fall I expect to spend far more of my time working my garden andkeeping my toold in repair than I will in killing people.

How I Got Where: Congratulations on your job, Dave. Sound like you had quite a time.

YAAITSS: Sorry to hear about your medical problems.I'm glad they seem to have been taken care of.

The current shuttle space suits are not a good design. There are better suits available, some of which operate at normal atmospheric pressure, with no prebreathing required. Unfortunately, they were Not Invented There.

Corvallis Gazette-Times: I liked those pictures and captions. That sequence about Little America reminds me of a gag from the old "I Love Lucy" show. The report of my own trip out west this summer appears herein.

Dental Floss Tychoon: I agree with you about history.

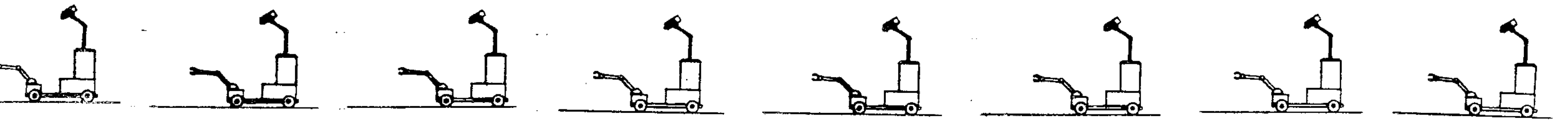
Quint Sing: (Quick! what famous SF author would be most likely to use this as a name fora character?) I got the check. By the way, thanks again for the data on the Dyson sphere. I am still trying to figure out how I came out several orders of magnitude too large. The numbers were right, just too many zeroes.

No, no, Greg. You put your best tires on the rear, even if you have front wheel drive. It is the traction of the rear wheels that keep the car tracking. Otherwise you would spin end-for-end every time you made a quick manuver on a slick surface.

I still want to know how I missed all of the other GT'ers in Washington.

This is the 22nd issue of TT (isn't it?). Since I don't read Nat Lamp I don't know exactly what you mean.

I may have to start underlining my toung in cheek remarks in red. Now, if I had said that numbers are a crutch I might have have meant it. Numbers are



a digital way of dealing with an analog universe, and at the best are a good approximation. As my structures teacher used to say, when in doubt go to the next larger beam in the manual.

Anyone who sits and stares as a flickering flourescent screen for hours at a time from a distance of twelve to eighteen inches is going to feel it. I have additional problems with computer terminals due to very good high-frequency hearing. Some units whistle so loudly that I can hear them from the next room.

A Foolish Consistency: Why require a test to get a gun liscense? Cars already have that, and they kill far more people than guns, even in wars.

About the CPA in my family, see my comment to Greg re. the Throwaway. I do all my own taxes.

endendendendendendendendendendendendendendendendendendendendendendendendendendend

What is the frequency being promoted for the Techie Talkies?

A Few Short Comments on Noreascon

I had a great time at this con. Not only did I leave for this a couple of days early to see Washington, I stayed on an extra day to extend the con as much as possible. Ah, who can ever forget the Dragon's Lair game six deep in neo-fen. Chickenwire to the stars. The Great Manakin Massacre. The supper at the Greek restaurant (thanks, Greg) and Nine making eight.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

A short note. I recently subscribed so Phoglio and Freff's D'arc Tangent. The confirmation card I got back had some of the printed words crossed out and a personal note added. Since the only person I know of at the ffantasy ffactory who knows me is Phil, I guess it is from him, although there is no signature.

TYPEWRITER RULES UNCLEAR TO MANY

BUCHAREST, Romania (AP) — Romanians now must seek police permission for owning a potentially dangerous weapon — the typewriter.

The typewriter decree has not been announced in the state-controlled media. As a result, most Bucharest residents seemed unaware of the heavy fines prescribed for illicit use of the keyboard.

Under the new procedures:

- Typewriter owners must submit written applications to police for permission to keep or buy a machine, then wait for an answer.
- If the application is approved, the owner must submit a type sample of numbers and letters for registration with authorities.
- Typewriters will be denied to people who have a criminal record or pose "a danger to public order or state security."
- Police must be notified within 24 hours of the loss or theft of a typewriter, and their rental or use outside the registered owner's homes is forbidden.
- Penalty for failure to comply with the law is $240 and confiscation of offenders' typewriters.

AMATEUR RADIO DETECTION OF THE PIONEERS

With the right combination of antenna, receiving equipment, amplifiers, signal processors and other miscellaneous equipment, it is possible for a person with the right background and on a modest budget to receive signals from Pioneers 10 and 11.

As previously reported in *AstroSearch*'s "NASA SETI Report" and on the pages of the Amateur SETI sections, small SETI systems are being built in California and across North America to detect ETI signals. The relevant question here is "What is required for these systems to detect Pioneer 10?"

Pioneer 10 is coasting outward and is at present 2.9 billion miles from Earth. Detection of Pioneer's signal, generating about 8 watts, is roughly equal to detecting an ETI beacon-type signal of 1 trillion watts located 1000 light-years from Earth. In short, detection of Pioneer's signal is an excellent way to test out the capabilities of a small SETI system.

The signals in both of these cases would be extremely weak and would have to be averaged over time before detection becomes possible. Let's take the hypothetical case of a 10-foot dish antenna and receiving system. A dish of this size, in order to "see" the signal from Pioneer 10, would have to average the signal for 1 ½ minutes at a bandwidth of 1 Hz. This, of course, assumes that the system is looking in the right precise direction and is compensating for Doppler shift of frequencies. Doppler shift is caused by motions of the Earth, including rotation, relative to motions of the spacecraft. Averaging over 1 ½ minutes would average out any individual signal fluctuations or "bits" of information with the result that only the signal would be detected, not its information content.

The 200-foot Goldstone antenna, located in California's Mojave Desert, is used to communicate with the Pioneers. It is approximately 400 times more powerful than our hypothetical 10-foot dish and is thus able to pick out the individual data bits.

Accompanying this article is the necessary raw data, including frequencies, channels and celestial coordinates for Pioneers 10 and 11, to start the dedicated amateur on such an ambitious project.

"Amateur Radio Detection of the Pioneers" will continue in the next issue of AstroSearch.

Nominal spacecraft frequencies used by the Deep Space Network (DSN) Performance Analysis Group in the generation of radio metric predictions as of 4-15-83:

	DOWNLINK	UPLINK
Pioneer 10	**2.292038600 GHz**	**2.110584000 GHz**
Pioneer 11	**2.292042430 GHz**	**2.110586880 GHz**

The following are planetary predictions for Pioneers 10 and 11 as of 7-3-83:

	DECLINATION	RIGHT ASCENSION
Pioneer 10	**24.641**	**65.646**
Pioneer 11	**-1.383**	**230.674**

Since the positions of Pioneers 10 and 11 appear to change very little relative to an observer on Earth, these coordinates should be adequate for most signal detection attempts for many months.

PIONEER 10 MISSION PROFILE

LAUNCH DATE:
March 2, 1972 8:49 pm EST

LAUNCH VEHICLE:
Atlas-Centaur + 3rd stage

LAUNCH WEIGHT:
259kg (570 lbs)
(28.6 kg (63 lbs) of scientific instruments)

SPIN RATE:
5 rpm

TRAVERSED ASTEROID BELT:
April 1972 — February 1973

JUPITER ENCOUNTER:
December 3, 1973 (131,966 km above clouds)

JUPITER FLYBY SPEED (MAXIMUM):
131,966 kph (82,000 mph)

VELOCITY ON JUNE 13, 1983:
49,182 kph (30,560 mph)

DISTANCE ON JUNE 13, 1983:
4,677,577,112 km (2,906,511,657 mi)

COMMUNICATIONS LIMIT: (WITH ARRAYING)
73.5 AU (10,099,548,975 km) (6,832,280,551 mi) in 2001

4

How I Spent My Summer Vacation

by

Rod Smith

or

I Was a Prisoner For Six Thousand Miles--------

Most of the following is true. It has been exagerrated somewhat for humorus effect.

I recently went on a vacation out west with my mother and her parents. Do you know what it is like to spend two weeks in a car with three other people, all of whom are hard of hearing? My grandfather did all the navigating, and he is the sort of person who takes his time with things. We had several anxious moments when we just barely found out on time which of the upcoming turns we were supposed to make, but somehow we always wound up where we wanted to go.

We left Frankfort early Monday morning, heading east. We took I64 to Louisville, then went north west. We stopped in Urbana for gas, then continued on. The first day was pretty much uneventful, as was the second day. As evening of the second day approached we entered Wyoming at it's southern most border, near Pine Bluffs. Since it was growing cloudy ahead we decided to stop for supper there.

Supper was fine, but while we were inside eating we began to heat a atrange noise. I thought it was rain hitting the vent in the kitchen, my mother thought it was popcorn. We then noticed that people were standing out in the loby, staring outside. I finished my meal and went out to see what was going on. It was hailing. Now, I have seen some pretty bad hailstorms in my time, but this was unique. Not only were the hailstones big (I personally saw some as large as ping-pon balls, and read in the paper next day that some had been found as large as grapefruit) but the strom lasted for over forty minutes. First the hail blew in from one direction, then it came straight down, then it came in from the opposit direction. And it poured down! When it finally ended the local highway people had to break out the snow plows to clear the roads. And with the cold, damp air from the hail mixing with the hot dry air left from before the storm, there was a lot of fog. It was pretty incredible.

We moved on west, keeping to the north. My grandfather kept us mostly to the US and local routes, claiming that interstates were all through uninteresting country. Whether this is true or not, we certainly saw some interesting terrain.

We entered Yellowstone park late in the day, and got to the lodge just in time to see Old Faithful dribbling away at the end of it's erruption. We decided to stay and eat supper, and while we were waiting around afterwards

I went walking wround the train through the geyser and hot springs trail near the lodge. It was nice, and I got to see a small geyser right beside the walkway errupt. I had just looked at it and walked on, when I heard it go off behind me. I got a good backlighted picture, with my shadow extending into the cloud of steam in the still air. I finished wasking the trail ane got back to the lodge, then went in to the restroom. When I came out Old Faithful had just finished another spouting. AAARRRGGGHH!!! So we waited another hour, which at least gave me more time to explore the trails. I nearly got to see the largest active geyser go off, one of a cluster which have a fairly tight schedual as a group, but the water may come out of any of them. Also, sometimes the fifteen minute (I think) cycle will start normally, with water draining from a lower pool a few minutes beforehand, but then nothing happens. The big geyser was overdue, and the cycle was just starting, but after the water drained down all we got was a little overflow from the big crater. Oh, well. Back to the lodge. And this time I did finally get to see Old Faithful gush. Not bad, although it was a little overdue and the sun was mostly down.

The next day we went through Craters of the Moon National Monument. This is an immense lave field, sprinkled with extinct and dormant volcanoes. I got to clamber around in some lava tubes, including one that had formed an ice cave. None of the others wanted to get out and walk around the trails, but they did ask me to take thier cameras. Our first stop was at a giant cinder cone. The sign said it was a half hour round trip. I told them I would be back in fifteen minutes. I made it to the top in five minutes, but was left gasping for breath and feeling worried about it. It had been a steep, long climb, but I should have been in better shape than that! Then I realised that the altitude at the park enterence had been over six thousand feet, and I had just climbed nearly another fifteen hundred. No wonder I couldn't breathe! It was well worth the climb, though. The view was spectacular.

Westward, ever westward. We finally reached Oregon, then headed south. Northern California, with giant redwood groves and the Pacific ocean. I was a bit disappointed with the former. Many of the trees were dead or obviously sick, and all of them had a lot of brown in their tops. Also, while large they were not the giants I had been expecting. Further south, and higher into the mountains, we saw some lovely groves, with healthy trees that were much larger. I still thought that they should be bigger, then I found a book in one of the park stores that informed me that the trees I was thinking of were Sequoyas. Redwoods are the tallest and heavyest living things on this Earth, but Sequoyas are the largest around.

On the trip back we went through Zion park. We tried to go into Yosimite, but my grandparents car, never a powerful performer, dropped our speed to around thirty mph. We got to 10,000 feet and found we had another two hours of driving once we got over the peak, and decided to turn around. We did stop and play in a snowbank left over from winter.

There are many other things I could write about this vacation. That we visited one of the largest cattle ranches in the world (140,000 acres), that we saw more rain in the destert, not just once but in several places, than Frankfort recieved while we were gone. That the ice caves were below freezing while the temperature outside was over eighty. That we saw the opening ceremonies of Cheyenne Frontier Days and the first day of the rodeo. That I spent $90 on a pair of boots there, along with $4 on a hat. That we saw The Great White Hope, a famous breeding and show bull, on a cattle farm in Indianna. My grandfather, by the way, is a cattle rancher. However, I am running short of time on this. I have hit the high spots, from my viewpoint at least. I hope you enjoyed it

The reign of error is over!
Watt resigned!

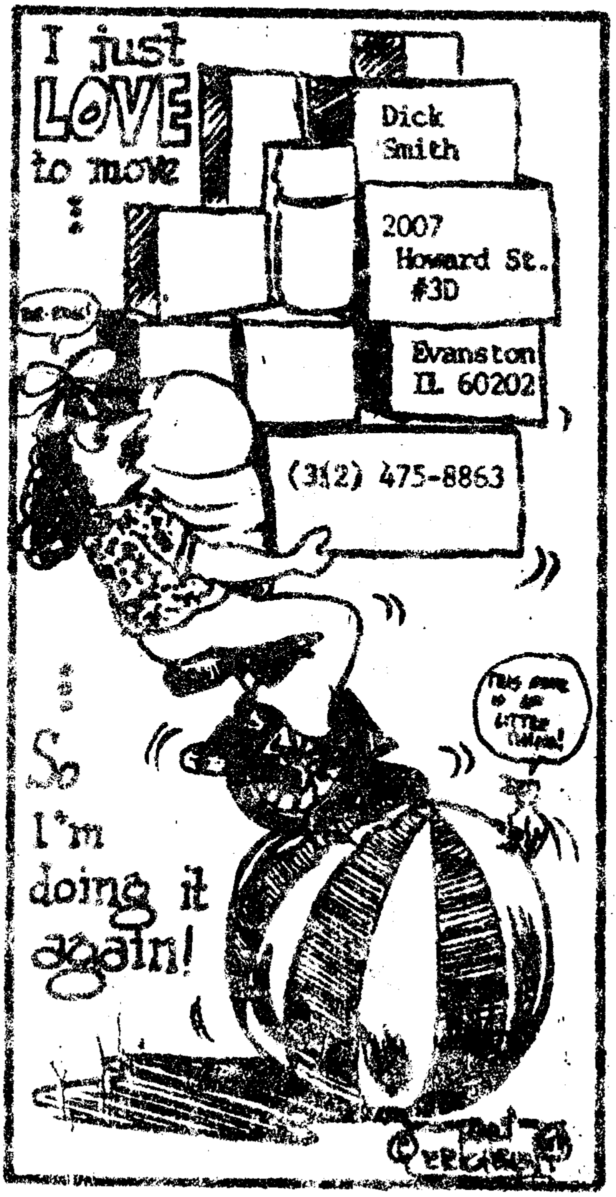
Rod Smith

BUSINESSMEN

they drink my wine

2007 Howard #3D
Evanston, IL 60202
(312) 475-8863

from Dick Smith for ApaTECH #27 or maybe #28



The phone number doesn't seem to spell anything better than IRK-TUNE (which you can remember by thinking about me playing my piano late at night) or IS-LOV-OD (which is tru).

The address you see on the other side of this sheet is *not* the new address I gave you last time. I started moving into that apartment, and then found out that it was prone to floods! I moved back to Oak Park for a month, until I could find someplace else, and have just finished moving for the third time in two months. Fortunately, the first move didn't get very far, so it wasn't hard to get unmoved again. Well, *relatively* easy, anyway.

There wouldn't be a zine here at all, since I was using the mental excuse that I was too busy recovering from the big move, except when I called Reneé on the 10th to tell her that I would not be sending a zine, but here's my new address..., she told me there were *no* contributions yet. I said I might get around to doing something, if it wasn't much.... I promised to fill a full page with Erichsen art, and maybe do one of natter. You've got it.

I wasn't impressed by the recent worldcon, ConStellation. Not because it had anything serious wrong with it, but more an accumulation of little things. It seemed like a con which didn't really care about its members, but catered instead to pros & smofs. There were tours of the Baltimore harbor, but there was no guide to restaurants or even a listing that gave schedules of the nearby ones. There were nine tracks of programming, but several of them had nothing to do with SF. There were frills for the committee. I hear that they've lost quite a bit of money!

Like Greg, I bought a new typer, mostly because all the electric typewriters in the house had been owned by Valli. The unit I bought myself is a Sears Electronic Communicator I, which I suspect is made by Olympia. It's a daisywheel unit, whith has 3 pitches but a limited number of available wheels. It seems to cut stencils and masters as well as a selectric does, and it has a proper correcting key which (unlike a selectric) remembers what you typed. It has a few odd characters, namely !|²³°·¢<>±®¶+=§][¼½£$. It's a hundred-character wheel that may or may *not* be compatable with the machine that Greg has. We'll have to compare.

I'll probably be working for the Austin NASFiC, but I don't know in what capacity. That con is the first national bid I've supported in a while that has won. Feels real strange.

That's enough to fill out a page... I'm going to get back to unpacking boxes...

Space Junk
What has four thrusters and FLIES?

being assorted debris and detritus too voluminous to put into QS
culled, accreted, or otherwise stolen by Gregory Ruffa, CSR

There's no chance of my having the main body of my writing ready for this issue, since things have been rather busy for me from August to the present. Most of that will be in QS 26. If my Pyro hasn't made you quite sick of space-related stuff, maybe this will...

The current Shuttle "schedule," as I make it from the news reports, looks like this:

> STS-9: November 26 (delayed due to booster problem); -10: CANCELLED; -11: January 29, 1984; -13: April 4; -12: May 7 (probably CANCELLED due to IUS problems); -14: June 6; -15: July ?; -16: August 1; -17: ?; -18: September 29.

Frankly, I don't see how they plan to make 20 flights next year, even with Discovery coming out of the shop about now. I guess there'll be a NEW schedule soon.

We're supposed to begin launch rehearsals with the folks at Galaxy operations in Los Angeles sometime next month. There will be two, or maybe three, rehearsals by mid-January; I'll be going out to California for at least one of them. Three members of the STS-11 crew (Vance Brand, Ron McNair, and Bob Stewart) came to Glenwood on October 12th en route to WU headquarters during a working tour; they got a quick tour of the station before being hustled off (sorry, no photos...).

Westar-II passed its ninth anniversary on October 10th. It's still stumbling along, now in an orbit of 0.6 degree inclination and giving our communications stations occasional tracking problems. Sometime after the launch of Westar-VI, Three will be moved over to 79 West to join Two. Good sense would dictate that we rid ourselves of the old bird, but we are dealing with decisions by Headquarters...

Our color graphics displays of various subsystems of the HS-376 satellites are more-or-less running now. The Calcomp Vistagaphics monitor interacts with the computer to interpret telemetry visually. Sanders Associates, who own Calcomp, were interested enough to send a couple people over to Glenwood to photograph the results; one picture appears in their current annual report.

OK, Kids, here's your chance once again to get onto the Space Shuttle (legally). NASA has just re-opened applications for mission and payload specialists, as of October 1st. Johnson Space Flight Center is handling the paperwork. I called them at (713)-483-5907 and am now being sent the requisite forms. Let's all go!

The Russians are supposed to be just about to Venus with two Venera spacecraft by now. I haven't heard anything about them in the news lately, but any day now...

Enough for now. I'll have more elsewhere. Green ether!

AT&T ASKS FCC TO REDUCE REGULATION OF SPECIALIZED SATELLITE SERVICES

AT&T has joined others in satellite industry in asking FCC to ease regulatory burden on carriers which provide specialized satellite services, basically voice, video and data provided entirely over satellites. AT&T asked Commission to start rulemaking, rule that field is competitive and that carriers should be accorded non-dominant status.

That would mean tariffs for specialized satellite services could be filed on 14 days notice with presumption of lawfulness and without detailed cost support material. It also would allow carriers to suspend service on 30 days notice if reasonable substitute is available.

AT&T said FCC was correct when it gave resellers of satellite services non-dominant status, said it was now time to extend relaxed regulatory treatment to providers of those services because field is "subject to high degree of actual and potential competition, entry barriers are low, existing carriers can expand or re-deploy their assets rapidly to take advantage of market opportunities, and transponder and earth station facilities are widely available and dispersed among many suppliers. Based upon these facts, no firm can be considered to have market power or the ability to control facilities or prices."

AT&T cited statistics which it said proves that no company controls major share of market, noted that FCC has authorized 19 new satellites through 1987, said many other companies appear poised to jump into market with private networks. In first chart, transponders are counted on 36-MHz equivalent basis. Following chart came from N.J. engineers MSI Telecommunications:

FCC APPROVED SATELLITE & TRANSPONDERS

	1982		1984		1987	
Carrier	Sat	Transp	Sat	Transp	Sat	Transp
RCA	5	120	5	120	9	216
WU	5	72	4	84	4	96
AT&T	4	72	4	96	4	96
SBS	3	36	4	48	5	60
SPCC			2	72	3	108
Hughes			3	72	3	72
GSAT			2	54	2	54
USSSI			2	48	2	48
Rainbow					2	48
ASC					2	72
ABCI					2	48
	17	300	26	594	38	918

Overall cost estimates for each shuttle launch in 1986-1988 are around $55.5 million, but NASA will charge commercial customers only $38 million and DoD $29.8 million for each flight, according to data NASA submitted to Congress.

—

Failure of key antenna was behind Soviets inability to dock with orbiting Salyut space station in April, according to mission commander Col. Vladimir Titov. Antenna failed to deploy, depriving craft of essential measurements of speed and distance, he said. One attempt at manual docking was made but, at distance of around 160 meters, decision was made to pass under station instead of attempting docking.

—

Hughes Aircraft's Space & Communications Group has donated rocket motor worth $300,000 to World Space Foundation for use in effort to demonstrate solar sail in orbit. Motor was originally to be used on HS-333 satellite.

from Satellite Week, August 15, 1983

Leaner & Fitter?

COMSAT READYING MASSIVE REDUCTION IN HQ WORKFORCE

Look for blood in scuppers soon at Comsat hq. We gather that purge is in offing intended to substantially reduce overhead, put Comsat into lean posture as it seeks substantial new capital for future projects. Reduction in force, understood to be substantial, is indicated, with hq operation targeted for deepest cuts. No jobs are expected to be cut at Satellite TV Corp., Comsat's DBS unit, however.

So far as we can ascertain, Comsat wants to trim up to $20 million in overhead. We estimate that Comsat hq is likely to lose at least 200 staff, possibly more, many of them quite senior. Reductions are expected to come from attrition, early retirements & direct firings. Internal committee report advising on reduction is supposed to be almost complete. One source expected dismissals as early as end of last week, another speculated that announcement would come after this week's board meeting.

Comsat has made no statement on planned cuts but we confirmed our information with several sources, one of whom noted: "It's no big secret around here. People are pretty nervous. I'm pretty nervous."

Apparent goal of Comsat's cost-reduction program, which we gather will be billed as "a strengthening" of Comsat's management structure, is to impress Wall St. Comsat is hoping that its overhead control program will permit it to significantly increase its dividend, that new image of toughness will make it easier to secure capital required for next phase of Comsat's expansion into DBS and other competitive businesses.

▲ from Satellite Week, August 15, 1983

Western Union Gives SCG Sign to Build W-VII

from The (Hughes) SCG Journal, August 1983 ◀

Representatives from Western Union called on Space and Comm executives this month to sign a contract authorizing SCG to build the communications company's latest spacecraft—Westar VII.

Dr. Robert Roney, SCG vice president, and Bernard Weitzer, vice president, Western Union Operations and Procurement, signed the agreement giving SCG the formal order to build one 24-channel spacecraft for its longtime customer. Several features will distinguish the newest Westar, the seventh to be built by the Group, from its predecessors. Westar VII will carry six spare traveling wave tubes in addition to the usual 24 primary TWTs—all of which are more powerful than those on previous Westars—and improved input filters which will provide better signal transmission. The satellite's propulsion system will carry 140 more pounds of fuel than Westars IV, V, and VI.

Like past Westars, the 28th HS 376 satellite will operate at C band for a planned 10 years. Once in orbit, W-VII will provide voice, video, and data to the continental U.S., Hawaii, Alaska, Puerto Rico, and the Virgin Islands.

Delivery date for Westar VII is set for June 1985. Equipped to ride on either the space shuttle or an expendable booster, the satellite is now booked on a shuttle flight in September 1985.

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from Hughes News, August 12, 1983

Hughes given go-ahead to build Westar VII satellite

Space and Communications Group's Commercial Systems Division has received the formal go-ahead from Western Union to build the Westar VII satellite.

A combination of higher power from new traveling wave tubes built by Industrial Electronics Group's Electron Dynamics Division and improved filters on board will give the satellite transmissions a stronger signal.

This stronger signal translates into better reception for users in the outer regions of the satellite's geographic coverage areas. The signal also will be able to better penetrate through rain and other poor weather conditions, and "dirty" satellite receiving antennas.

Once in orbit, Westar VII will provide voice, video, and data services to the continental United States, Alaska, Hawaii, Puerto Rico, and the Virgin Islands from its position at 91 degrees west longitude, 22,300 miles above the equator at a point south of St. Louis.

It is scheduled for launch in September 1985 during the 30th Space Shuttle flight. It will have twice the number of communications channels, or transponders, as Westar III, the satellite it will replace.

Westar VII is the 28th satellite of the Hughes HS 376 design to be ordered. Nine customers have contracted for future HS 376s, and 11 of the satellites are operating in geosynchronous orbit today.

Westar III is the last of Western Union's three Hughes-built HS 333-design communications satellites.

Flood of applications — more than 4,000 — have followed announcement by National Research Council of Canada's intentions to build small corps of astronauts which will fly Canadian missions on shuttle. List has been cut to 2,000, will drop to 75 then 20. Four finalists will be chosen as astronauts and understudies to fly 2 specific missions: Space vision system, to use orbiter TV cameras and processor to relay live pictures of remote manipulator arm to shuttle astronauts; research into man's ability to adapt to zero gravity.

NASA won't "go by the numbers" on its shuttle flights after STS-9, according to new shuttle manifest that shows some flight rescheduling. Delays, for most part, are due to problems with Air Force's Inertial Upper Stage (IUS). DoD flight 10 was canceled outright, may be reflown on STS-15 which was left open for just such contingencies. STS-11 is scheduled for Jan. 29, 1984, will carry Palapa B-2, Westar 6 and German Shuttle Pallet Satellite. STS-13 will follow on April 4, will carry Long Duration Exposure Facility for deployment and retrieval one year later, and will be highlighted by Solar Max mission in which satellite will be repaired in orbit. Next is STS-12 carrying 2nd Tracking & Data Relay Satellite (TDRS) booked for May 7, barring further problems with IUS. STS-14 will follow on June 4 carrying Telesat 1 and Syncom IV-1. Launches begin again in sequential order after STS-15.

from Satellite Week, September 5, 1983

'Black September'

MOANS, GROANS AND BOOS FOR FORD'S LATEST INSAT DEBACLE; RCA HAS HAND OUT, TOO—CLAIMS $20 MILLION LOSS ON SATCOM 2

It was another rotten week for satellite underwriters — possibly to tune of more than $100 million. One underwriter called it "black September." Getting week off to terrible start was news that Insat 1-B could be declared more than $80 million total loss if controllers don't succeed in deploying jammed solar power array.

As if this weren't enough, insurers went home on Fri. with word that RCA has put in claim of $20 million for loss of even-channel bank of 12 transponders on Satcom 2, in addition to previously failed odd-numbered transponder. We exclusively reported likelihood of claim back in May, said then that payment seems "virtually inevitable." Talk about caveat emptor: Satcom 2 insurance contract seems to give RCA every right to claim for loss of bank of 12 transponders on aged bird — which still has year's supply of stationkeeping fuel on board. "Given the situation we have with the underwriters, it's inappropriate to discuss the situation further," RCA official told us.

More than Insat 1-B's fate hangs in balance as ground controllers were said to be trying to shake and bake satellite in effort to deploy solar array. Method involves firing thrusters to vibrate bird, turning satellite to "heat soak" hinges. It wasn't clear whether problem was in hinges or somewhere else. Either way, situation was rapidly becoming major embarrassment for Ford, Insat's prime contractor. If Insat 1-B follows Insat 1-A as total loss, it will set new record for space insurance payout, attenuate confidence in Ford's quality assurance and design capabilities, and damage confidence of financers and underwriters in other satellite programs.

Insurers Angry

Few were taking comfort in Ford's spokeswoman Susan Frutkin's flat assertion that everything was going to be worked out. (That was also her position on Insat 1-A — just before that first Indian spacecraft tumbled out of orbit and became $70-million-plus insurance loss.) Underwriting circles directly exposed to Insat 1-B liability were talking of odds no better than 50-50. There was grumbling about "people who seem willing to take chances at the expense of the insurance industry."

Frutkin denied that insurers had been dealt a poor hand. She declared: "The insurance industry is ahead on satellite insurance." To that, insurers replied forcefully. Said James Barrett, space insurance guru and principal in International Technical Underwriters, Washington, who didn't participate in Insat underwriting: "Some people are ahead but some are at a 200% to 300% deficit or even more. As a whole, the industry is in deficit."

from Satellite Week, September 12, 1983

Insat 1-B was successfully deployed less than a week later. The long-term problem for the insurance industry is yet unsolved.

NASA, WARNED AGAINST TDRS DEAL, IGNORED OWN INSPECTOR GENERAL

NASA was warned on 2 separate occasions by its inspector general that restructured (or "reformed") contract signed early this year with Spacecom over Tracking & Data Relay Satellite System was bad deal, yet agency went ahead with reformations anyway. We've already reported many details of contract for $2.7 billion, 3-satellite system (SW July 5/82, March 28, April 4 & 11, July 4), but we've now obtained copies of documents which reveal both specific concerns of agency officials about deal and Spacecom's skill at achieving maximum profit.

Deal between NASA and Spacecom originally was designed as kind of elaborate lease-back arrangement whereby lessor Spacecom also had rights to commercial portion of spacecraft. Known as "Advanced Westar," plans for this strictly commercial use of TDRSS were supposedly abandoned when Western Union, deal's original craftsman, backed out of arrangement. Scant 2 months before Western Union was allowed to exit from its deal with Fairchild and Continental Telephone for $35 million cash, NASA Inspector Gen. June Brown sent memo to agency's administrator and deputy administrator warning: "Certain provisions of the reformation package, if exercised by NASA, would again marry the TDRSS program to a certain extent to Advanced Westar, a predicament that the reformation package was intended to avoid."

NASA went ahead with wedding anyway, paying Spacecom some $216 million to compensate it for "loss" of commercial Westar and supposedly assuming full control of satellite system for its own uses. As we reported earlier, Spacecom retained right to use "excess" commercial capacity aboard system and Western Union retained right to lease it from Spacecom. Spacecom, under reformed contract, was to share revenues with space agency. In Brown's opinion: "Although NASA would be provided consideration for the Spacecom use of the Advanced Westar, there is a possibility that the revenues expected to be generated for the government may be illusory."

Brown urged NASA to protect its interests — and ultimately those of public who supplied money for Spacecom's "investment." Spacecom placed value of $92 million on its operation and maintenance input for Advanced Westar at point of contract restructuring: "The source of funds for this 'investment' is the Federal Finance Bank (FFB)," Brown wrote. Govt. thus found itself in position of repaying govt. money with more govt. money — all along NASA was responsible for repayment of all interest as well as principal. Because shuttle was also losing commercial customer, that program too would suffer some setback, Brown said. She also warned that actual cost of $35 million that was scheduled to be paid to WU was really costing govt. $108 million because of interest value over 10-year life of contract.

Finally, at time of contract restructuring, Spacecom's operations contract also was revamped from fixed-cost to cost-plus arrangement and Spacecom was given exclusive operating rights. NASA could get someone else to operate system, but that would free Spacecom from having to service it. "It is not prudent to 'lock in' on a single contract for such a long period of time before negotiating the estimated cost and fee, or having an opportunity to at least measure the contractor's initial performance," Brown warned.

Cable News Blasts Away

Further criticism of NASA's handling of TDRSS was supplied in Cable News Network broadcasts last week. Two-part report, compiled by Pat Clawson of Special Assignment unit, accused Spacecom of crafting deal that would reap company "millions of dollars in business benefits at virtually no risk." His report also took aim at House Subcommittee on Space Science which has congressional oversight responsibility for TDRSS project, said Subcommittee was made up essentially of "boosters" of space program who rarely asked tough questions about how programs were financed. Following taped interview, Rep. Lujan (R-N.M.) promised he would press for special hearing on TDRSS project and would ask for congressional audit as well.

Spacecom spokesman said company had no official response to CNN report. He added, however: "What is lacking in this series is the whole issue of risk and who bears the risk of developing the system. Spacecom does." He also said: Congress has looked at this as has the Administration... There's just nothing that would cast a shadow on anything we've done."

More fun in the world of space commercialization...

from Satellite Week, September 12, 1983

INTELSAT RECORDS 27% RISE IN REVENUE, PROJECTS GREATER GROWTH IN '83

Intelsat's annual report reveals greatest growth in revenues in decade, with even larger spurts predicted for next year. "Despite a slowing down of demand in the 2nd half of 1982 due to a worldwide decline in economic activity," report said revenues from full-time traffic carried over Intelsat's satellites grew record 23% during year to March 31, 1983.

Overall business growth was even greater, report said, and Intelsat revenue "increased by 27% from $249 million in 1981 to $315 million in 1982. A substantial increase is projected also for 1983 and revenues for that year are expected to approach the $400 million mark" (which would make for 36% growth since 1981). Of that amount, depreciation were $89 million, operating expenses $66 million. Source of revenues: Full-time service, 82%; transponder leases, 8%; TV, 6%; "other," 4%.

Though revenues increased by 27%, return to signatories on capital investment was 15.9%, indication that increasing investment is being funneled into system itself. In fact: "Capital expenditures in 1982 reached a new high level of $332 million, largely for launch vehicles and spacecraft of the Intelsat VI program and the new headquarters building. A total of 15 spacecraft were under procurement at the end of the year." Total net investment in Intelsat system also rose: "During 1982, it passed the $1 billion level, representing a doubling in the past 3 years." Largest spurt ever is predicted for next fiscal year when net plant and property investment should approach $1.5 billion.

Rates appear to have leveled off after steady decline from 1965-81. Satellite utilization charge was maintained at same level as in 1981, $9,360 per year for telephone circuit, and will be held at that level in 1983, report said.

Assuming rates stay same, and there's no indication worldwide inflation will decrease, Intelsat could be looking at masses of capital by 1986-87. According to report: "The Intelsat System Planning effort is directed at the 1988-2000 time period, with particular emphasis on the near term alternatives during 1988-95. Over this entire period, Intelsat's conventional international traffic is expected to grow at about a 15% annual rate; in addition, Intelsat anticipates the emergence and rapid growth of several new services for business...

excerpted from Satellite Week, September 12, 1983

More Surprises About Earth-Sized Planet

Pioneer Venus Reveals That Ocean Surged on Desert World

When NASA launched the two SCG-built Pioneer Venus spacecraft—an orbiter, and an interplanetary bus carrying four entry probes—in 1978, little did anyone suspect that the mission would turn out to be one of the most spectacular successes in the history of U.S. solar system exploration. Six years later, scientists at NASA's Ames Research Center, near San Francisco, continue to wade through the sea of paper data generated by the four probes, now long since dead, and the PV orbiter, which is still operating today. The science team's continuing analyses of the original information, coupled with new data sent back from the orbiting spacecraft, reveal remarkable new facts about the planet Venus.

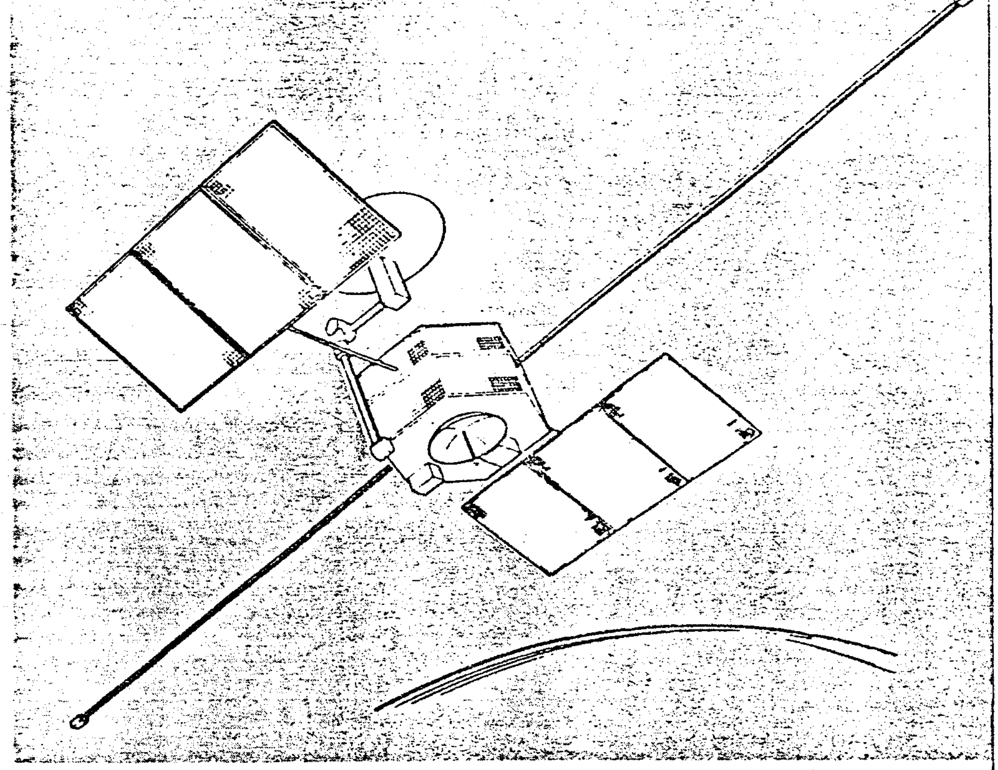
Venus is a poisonous, burning place. Deadly clouds of sulfuric acid engulf it. Arcs of white-hot lightning crackle across the Venusian sky. At the dead, rocky surface, the charring heat would cause lead or tin to flow and bubble. In this scorched, desolate environment, it's not surprising that there is virtually no evidence of water, in any of its forms. However, the Ames Pioneer Venus team has found evidence that there may have been water, a lot of water, more than conjectured earlier. Measurements, taken by an instrument onboard the PV large probe, of deuterium—heavy, or radioactive, hydrogen—indicate that sometime during its first billion years, the planet called "Earth's twin" contained what Ames Chief Scientist Larry Colin describes as "a terrestrial-sized ocean," possibly 27 feet deep in the shallows. The clue to this finding is the amount of deuterium that Venus contains. "The planet has much more of this element than does Earth," Colin explained. "If there had been an ocean on Venus, and all the water from it had evaporated and then escaped from the planet's atmosphere due to factors like intense heat, we'd expect to find this usually rare form of heavy hydrogen remaining in large amounts. That's what we found."

Colin estimated that it would take about 300 million years for the ocean he described to completely evaporate. He added that, although the radar onboard the Pioneer Venus orbiter hasn't detected any physical signs of the previous existence of water, it's possible that the higher-resolution radar subsystem that SCG is developing for NASA's Venus Radar Mapper spacecraft mission in 1988 could uncover evidence such as dried-up river beds, erosion lines, or other features which could be water-caused. "Maybe we'll even determine where that ocean was," Colin mused.

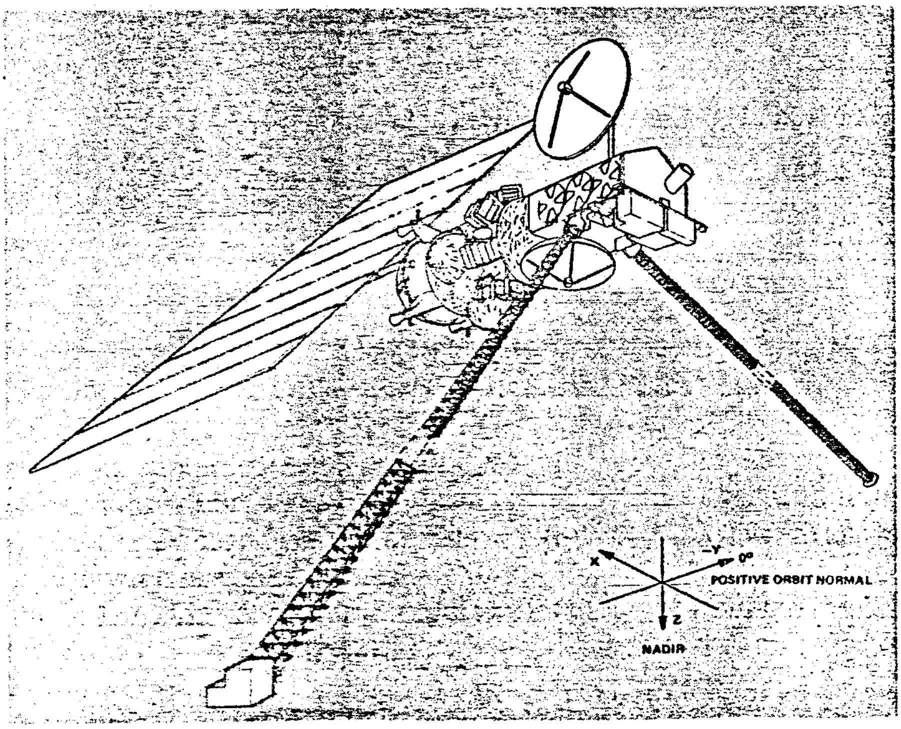
Other investigations, these centering on the streams of digital information coming from the Pioneer Venus orbiter, also have turned up surprises for Ames scientists. According to Colin, the orbiter's recorded measurements of lightning activities on Venus seem to indicate that the lightning is not traveling from the clouds to the ground, as is the case on Earth. Instead, the bursts appear to occur in the Venusian highlands and work their way up through the atmosphere. "There's a possibility that volcanic activity under the planet's elevated regions could be causing these 'bolts from the ground,' but of course we're not sure," Colin confided. Another cause could be the large amount of electrically conductive "fool's gold"—iron sulfide—that seems to be present in the highlands.

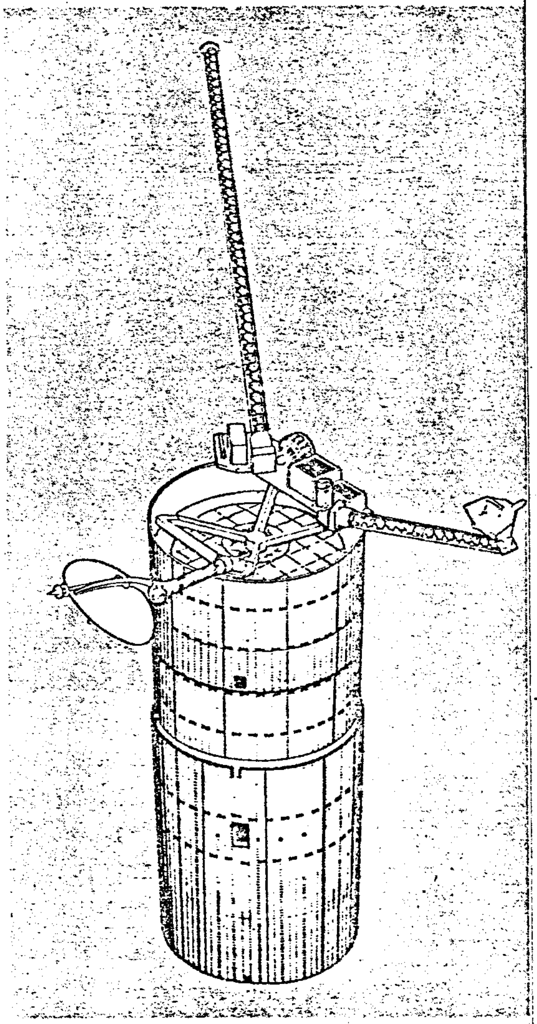
from The SCG Journal, September 1983

Contractors Design Martian Orbiter Probes



Three contractors are completing studies on how existing spacecraft designs could be used for the proposed National Aeronautics and Space Administration Mars geoscience/climatology orbiter mission (AW&ST June 20, p. 51). The RCA defense meteorological satellite (below left) is shown here configured in the Mars geoscience/climatology orbiter mode. The spacecraft normally provides U. S. Air Force strategic and tactical weather data from polar Earth orbit, but in this mode it would gather planetary scientific data from Martian orbit. Large solar array at the rear powers both boom- and body-mounted instruments. High-gain antenna facing upward sends information to Earth, while the dish pointed down is a radar altimeter to collect Mars surface elevation data. The Hughes HS-376 spacecraft (bottom right), normally an Earth orbit communications satellite, is shown as it would appear configured for the Mars orbiter mission. The spacecraft's despun communications antenna platform on the top has been replaced with a despun Mars science instrument platform. Instruments such as a gamma ray spectrometer and magnetometer could be placed on the booms to collect Mars surface data. High-gain dish antenna permits communications with Earth. A third study is being done on the TRW FleetSatCom Navy communications spacecraft (above) shown here in Mars orbiter configuration. Radar altimeter and boom-mounted instruments obtain data on Mars, and high-gain antenna on the back of the satellite is pointed toward Earth. Solar panels provide power.





Around the Circuit

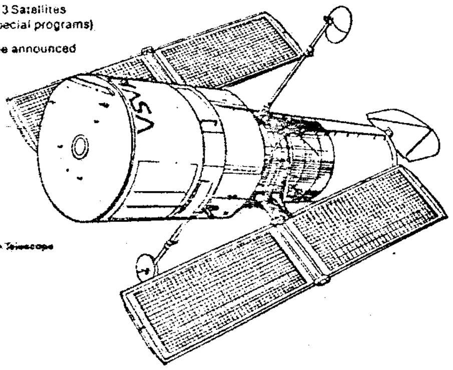
American Scene: What Other Space Companies Are Building

Lockheed Missiles & Space Company

Programs	(Type)	Customer	First Launch
• Space Telescope	(Science)	NASA	1986
• MILSTAR	(Comm)	U.S. Department of Defense	Late 80s

Backlog, March '83: 3 Satellites
(Does not include special programs)

1982 Launches: None announced



Space Telescope

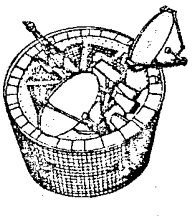
TRW Space Technology Group

Programs	(Type)	Customer	First Launch
• TDRS-1 (Six)	(Data relay)	NASA	1983
• FLTSAT (Three)	(Comm)	U.S. Navy	Late 80s
• Defense Support Program (Four)	(Multipurpose)	U.S. Department of Defense	
• Gamma Ray Observatory	(Science)	NASA	1987
• DSCS II	(Comm)	U.S. Department of Defense	

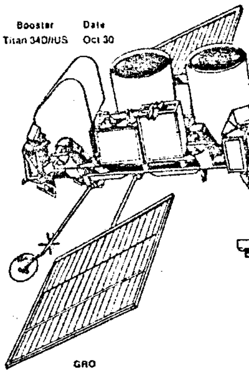
Backlog, March '83: 14 Satellites
(Does not include special programs)

1982 Launches

Satellite	Booster	Date
DSCS II	Titan 34D/IUS	Oct 30



DSCS II



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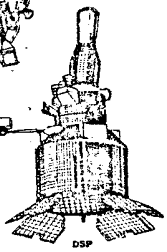


DSP

Ford Aerospace & Communications Corporation

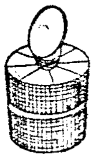
Ford Aerospace

Programs	(Type)	Customer	First Launch
• INSAT-1 B	(Earth resources/ comm/weather	India	1982
• Intelsat V (Four)	(Comm)	INTELSAT	1983
• Intelsat VA (Five)	(Comm)	INTELSAT	1983
• CS-2A, -2B	(Comm)	Japan	1983
• NATO IIID	(Comm)	North Atlantic Treaty Organization	1983

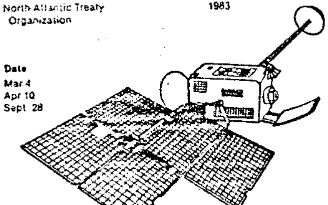
Backlog, March '83: 17 Satellites

1982 Launches

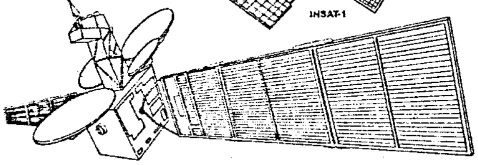
Satellite	Booster	Date
Intelsat V F-4	Atlas Centaur	Mar 4
INSAT-1A	Delta	Apr 10
Intelsat V F-5	Atlas Centaur	Sept 28



CS-2



INSAT-1



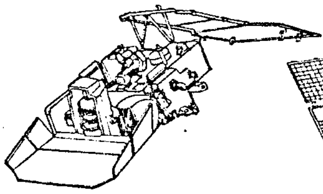
Intelsat V-F7

Rockwell International

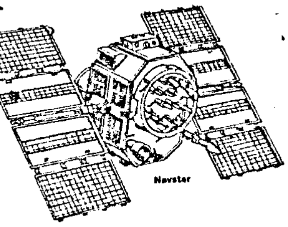
Programs	(Type)	Customer	First Launch
• Space Test Satellite	(Test craft)	U.S. Air Force/NASA	
• Global Positioning Satellite (28)	(Navstar)	U.S. Department of Defense	Ongoing
• Space Shuttle (5)	(Launch vehicle)	U.S. Government	1982

Backlog, March '83: 28 Satellites

1982 Launches: None announced



Space Test Satellite



Navstar

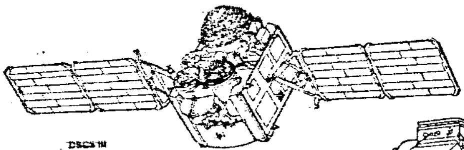
General Electric Space Systems Division

Programs	(Type)	Customer	First Launch
• Japan Broadcast Satellite A, B	(DBS)	Japan	1984
• DSCS III (Four)	(Comm)	U.S. Department of Defense	1983
• Landsat 4, D Prime	(Earth resources)	National Oceanographic Atmospheric Administration	1982

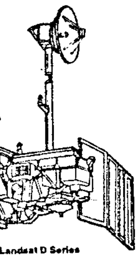
Backlog, March '83: 7 Satellites
(Does not include special programs)

1982 Launches

Satellite	Booster	Date
DSCS III	Titan 34D/IUS	Oct 30
Landsat 4	Delta 3920	Jul 16



DSCS III



Landsat D Series

DS-2A

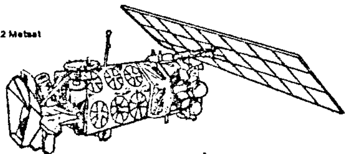
RCA Astro-Electronics

Programs	(Type)	Customer	First Launch
• Satcom II-R, VI	(Comm)	RCA Americom	1983
• Gstar 1, 2, 3, 4	(Comm)	General Telephone	1984
• Spacenet 1, 2, 3, 4	(Comm)	Southern Pacific	1984
• STC 1, 2	(DBS)	Satellite Television Corp.	1986
• ASC 1, 2	(Comm)	American Satellite	1986
• Block 5D-2 A, B, C, D	(Metsat)	U.S. Air Force	1983
• Nova (Two)	(Navsat)	U.S. Navy	1983
• TIROS-N 8, B, C, D	(Metsat)	National Oceanographic/ Atmospheric Administration	1983

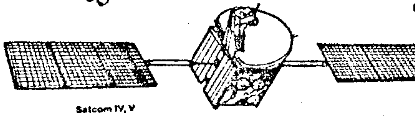
Backlog, March '83: 25 Satellites

1982 Launches

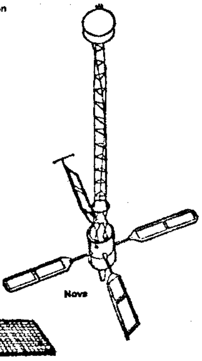
Satellite	Booster	Date
Satcom IV	Delta	Jan 15
Satcom V	Delta	Oct 27
Block 5D-2 (F-6)	Atlas E	Dec 20



Block 5D-2 Metsat



Satcom IV, V



Nova

Drawings: Doug Asbell

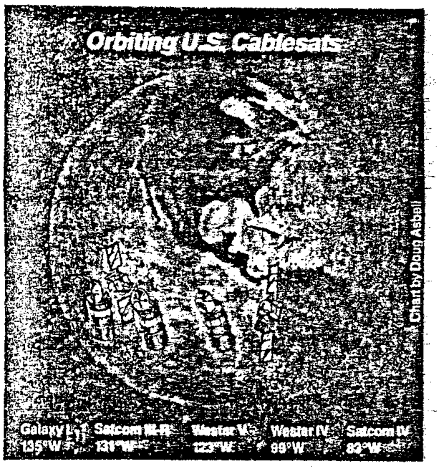
The Satellite Connection

Galaxy I: Newest 'Supernova' in Cable TV Constellation

A new star will soon be glittering in the CTV sky. When Galaxy I, the first starcom from Hughes Communications, begins beaming to ground stations all over the country, the 24-channel "video shopping center" will be joining the four orbiting cablesats (two of them also built by the team at SCG), adding 18 dedicated transponders to the 67 that are now pumping down pay TV channels to commercial and backyard dishes across the nation. The high-flying relay stations provide programming for every taste—from theatrical movie releases, cultural events, and "rock 'n' roll television," to live action from the floor of our nation's Capitol, "adult entertainment," and religious presentations. (A note from SCG management: You won't find any of that "adult entertainment" on Galaxy.) If you've got cable, and you can't decide what to watch *now*, wait for Galaxy I . . . .!

Cable Satellite Lineup

Galaxy I (Hughes Comm)	Transponder
C-SPAN	Unassigned standard
Group W Broadcasting Company	2, 8, 12, 22
HBO	1, 3, 17, 19, 21, 23
SIN Television Network	6, 20
Times Mirror Satellite Programming	5, 10
Turner Broadcasting System	7, 18
Viacom International	14, 16



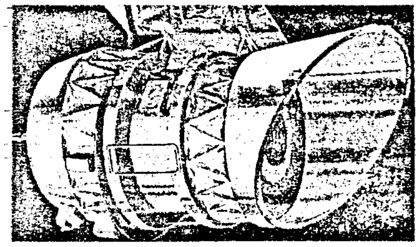
Satcom III-R (RCA Americom)	Transponder
ACSN—The Learning Channel	16
C-SPAN	19
Cable Health Network	17
Cabletext	6
CBN Cable Network	8
Cable News Network	14
CNN Headline News	15
Cinemax (East)	20
(West)	23
Daytime	22
Dow Jones Cable News	
(United Video)	3
(Southern Satellite Systems)	6
EPG (United Video)	3
ESPN	7
Eternal Word	18
HBO (East)	24
(West)	13
HTN Plus	16
Lifestyle (United Video)	3
Moody Bible (United Video/audio service)	3
The Movie Channel (Warner Amex)	5
MSN—The Information Channel	22
MTV	11
National Jewish Television	16
Nickelodeon/ARTS	1
PTL	2
Reuters News View	18
(SSS)	6
SCAN	6
Spotlight (Times Mirror)	4
Showtime (East)	12
Showtime (West)	10
Sunshine Entertainment (audio service)	2
UPI Cable News	6
UPI Customized Cable News	6
USA Network	9
(during blackout)	22
The Weather Channel	21
WFMT (United Video)	3
WGN (United Video)	3
WTBS (SSS)	6

Satcom IV (RCA Americom)	Transponder
American Network	19
BIZNET (Department of Commerce)	15
Bravo	8
The Entertainment Channel	8
EROS (evenings)	2
Financial News Network (daytime)	2
GalaVision	23
Genesis	12
HBO (Time Inc. Teletext)	18
National Christian Network (daytime)	7
Playboy Channel (evenings)	7
SIN	1
SPN	3
Trinity (KTBN)	17

Westar IV (Western Union)	Transponder
AmSat	5D
AmSat/Digital Traffic	6X, 7D
Bonneville Satellite	3D, 12D, 12X
Cable News Network news feeds	8X
Hughes Television Network	1D, 1X
SelecTV (Wold Communications)	9X
Wold Communications	6D

Westar V (Western Union)	Transponder
AmSat/DCM	7D
BET	12X
Citicorp	3D, 10D
Daytime	12X
Digital Communications Corp.	11X
The Disney Channel	5X, 6X
Group W Satellite (East)	11D, 12D
Hughes Television Network	1D, 5D
Nashville Network	9D
Satellite News Channel I	
Incoming Feeds	9X
Regional Feeds	4X, 7X, 8X
National Feeds	6D
Satellite News Channel II	8D
UTV Cable Network	2X
WOR	2D

'Eye' Still Open to Universal Possibilities



"The Big Sweep" — Starting this month, the Infrared Astronomical Satellite (IRAS) will make another complete sweep of the sky in its search for infrared sources in space. The spacecraft, a joint effort of the U.S., The Netherlands, and Great Britain, will have covered 99 percent of the sky after this trip, its third look around. Since January of this year, the "sky-high eye" has been returning data on the heavens with some success — it recently discovered a comet, a new star, and a young solar system.

Astronauts Laud SCGers

Bob Stewart and Ron McNair, mission specialists for the shuttle's eleventh flight, visited SCG last week to present 10 Group employees with Silver Snoopy awards, and to learn more about the satellites they will deploy — Westar VI and Palapa-B2.

"The Silver Snoopy, named after the Charles Schultz cartoon character, was first given in 1967 after the Apollo fire," explained Stewart. "It is a jealously guarded award given by people in the Astronaut Office to people we feel have made significant contributions to manned space flights . . . After all, we virtually depend on you for our lives and certainly for our mission success."

The January 1984 mission of Stewart, McNair, and three other crewmembers will include the launch of Westar VI and Palapa-B2, the use of the Ku band radar to locate and retrieve a free-flying mylar balloon, and the first flight test of the Manned Maneuvering Units (MMUs). Stewart and Mission Specialist Bruce McCandless will don the "jetpacks" and fly, untethered, about 300 feet away from the shuttle. Using the MMUs, Ku band, and shuttle arm, the STS-11 crew will verify the techniques to be used on STS-13 when astronauts will attempt to dock with, grab hold of, and stabilize the ailing Solar Max spacecraft. Beamed Stewart, "I am looking forward to it so much you wouldn't believe."

from The SCG Journal, August 1983

Soviets to Release Balloons Above Venus

Budapest, Hungary—The Soviet Union plans to release balloons into Venus' atmosphere during the 1985 Vega mission and keep them aloft for two days to provide data on the planet's wind patterns.

A balloon will be released with a lander craft from each of two Vega flyby probes as they pass Venus in June, 1985. The free-floating balloons will be tracked by Earth stations using the very long baseline interferometry (VLBI) method.

V. A. Kotelnikov, chairman of the Soviet Intercosmos Council, said the two days of VLBI balloon tracking should provide new data on Venus atmospheric dynamics.

The balloons also will carry a limited instrument payload for measurements of atmospheric temperature, pressure and the vertical wind velocity component, Kotelnikov said.

"Our balloons hopefully will stay aloft for about two days and help provide knowledge on the parameters of motion of the Venus atmosphere," Kotelnikov told a meeting at the 34th Congress of the International Astronautical Federation here last week. "This is going to be our first such experiment on Venus." Kotelnikov said the balloons will have a diameter of about 10-18 ft. when inflated after their release from the lander craft.

The Venus landers will take a variety of measurements during their descent to the planet's surface. Kotelnikov said data gathering will begin at an altitude of about 60 km. (37.3 mi.) after the lander braking parachute is opened. The measurements will continue for 1 hr. and will terminate before landing.

Upon touchdown, the lander's surface data collection phase will begin. Composition of the Venus surface will be studied by an X-ray fluorescent spectrometer and a gamma-ray spectrometer, he said.

After releasing the lander/balloon unit at Venus, the flyby portion of the Vega spacecraft will continue to a March, 1986, encounter of the Halley's Comet (AW&ST July 12, 1982, p. 72).

Launch of the two Vega spacecraft is planned in December, 1984. They will be launched on separate boosters from the Tyuratam site. First launch is planned Dec. 24, the second Dec. 28, program officials said.

International Sun Earth Explorer (ISEE-3) spacecraft passed within 17,000 mi. of the Moon Oct. 27, setting the spacecraft up for two additional lunar swingbys that will send the NASA/Goddard vehicle toward a Sept. 5, 1985, intercept of the comet Giacobini-Zinner. Another distant lunar flyby will occur Oct. 21, followed by the most critical pass Dec. 22 when ISEE-3 is to fly within 62-68 mi. of the Moon's surface for a lunar gravity assist toward the comet.

Soviet Gamma 1 Satellite Set for 1985 Launch

Budapest, Hungary—Soviet Union's Gamma 1 heavyweight gamma-ray observatory has been rescheduled for a 1985 launch following the fixing of problems encountered while developing the spacecraft's scientific payload.

The 1,500-kg. (3,300-lb.) gamma payload has begun its qualification in a Soviet accelerator and should be ready for integration into the satellite in 1984.

Gamma 1's new launch date is set for mid-1985, program officials said. This is a delay from the original 1984 launch goal (AW&ST Aug. 9, 1982, p. 53).

Program officials said a series of technical problems were encountered during the Gamma 1 payload development program, but most of the major issues have been resolved.

The Gamma 1 satellite is a modified version of the Progress resupply vessel used with the Soviet Union's Salyut space station.

The Progress design was changed to give the pointing and control accuracies necessary for Gamma 1's role as a gamma-ray observatory and to increase its on-orbit lifetime to more than one year. Normal launch weight of a Progress vehicle for supply missions to the Salyut station is approximately 15,455 lb.

France is participating in the development of Gamma 1's payload as part of the French-Soviet cooperative space science program.

White House decision on whether to approve U. S. development of a space station has been delayed, and President Reagan's planned space program address Oct. 19 at the National Air and Space Museum will avoid discussion of a development go-ahead. The **decision is being delayed until views of the Senior Interagency Group on Space can be given to the President.** The delay will allow the President to be briefed on the Defense Dept.'s ballistic missile defensive technologies study before making his space station decision.

The National Air and Space Museum has embarked on an ambitious plan to build a new $40-million facility adjoining Washington's Dulles Airport to house large exhibits, such as the space shuttle Enterprise, a prototype Boeing 707 and 747 and possibly the Anglo/French Concorde supersonic transport. The complex south of the present Dulles terminal and runways would consist of four buildings, each 250 ft. square and 90 ft. high. Museum director Walter Boyne anticipates asking for federal funds in Fiscal 1986 and opening the new facility in the late 1980s.

from Aviation Week and Space Technology, October 17, 1983

FROM THE TERMINAL OF: Renee E. Sieber
525 W. Walnut St.
Kalamazoo, MI 49007

DEAR B$,

How have you been doing? I've been doing fine. Been too busy, though...

I liked Greg's idea that apa members should write an informal letter once every issue. Nothing fancy, just some ramblings to keep in touch with everyone. So I thought I'd tie myself to a terminal and correspond. Also, now that I'm working/wrestling with a compiler, I've got a lot of spare minutes while the compiler runs. I might as well stare blankly at this screen instead of the Apple screen. Also, the issue needs a little padding.

Our trip out West (as you've see) was very enjoyable even though we spent much of the time in the car. I still maintain that the only way to see the West is to travel across it. Contrary to pupular belief, the U.S. is not two coasts glued together. You have to get sweaty, dusty, and bone-weary to experience it. We saw a lot of places where we'd like to live (scanned a lot of wantads.) Oh, didn't I tell you? We've been dreaming of moving to the Northwest -- Northern California, perhaps Oregon. Oregon is beautiful -- misty, green, mountainous. You get the feeling that the coastal cities of Oregon (97% of Oregonians live on the coast) which butt up against the mountains will be pushed into the ocean at any time. And it rains constantly (I love those grey days)!

Alex and Eric Gullerude's friend, John Seacrest, has started a commune in Corvallis. He and 5 others bought a large house on 10 acres. As things usually turn out, now there are only 2 so it's not easy to make the payments. But what a grand dream! He grows his own vegetables (the growing season is year round) and has a small orchard from which he collects plums, apples and peaches. He even has chickens (although he is a vegetarian so I don't know if he even eats the eggs. He might sell them, though.) After working at HP, growing food and maintaining the house and land occupies him full-time. I might dream of living the way he does but I'm not yet ready to devote my whole life to it.

Visiting Dave (Drugs) Levine at LucasFilms was amusing but far more interesting to Alex and Marty. It seems that LucasFilms is devoting most of its energy and money towards computerizing filmmaking, especially sound editting onto film. You can ask Alex or Marty for details. The place had great offices, though. All done in oak woodwork, evergreen, and white. For relaxation (since most everyone there worked 80 hours a week) employees have their own pinball games and an Alpha Syntauri.

Constellation was okay. I felt the highlight of the convention was THE RIGHT STUFF panel, starring Chuck Yaeger. What a charimatic guy. The room vibrated with excitement when he spoke. The actors weren't bad either even though I found them a bit air-headed. I enjoyed spending many late hours with Dale Scran discussing one of favorite subjects: feminism. During the days I roamed around the con with John Praumbach. The two of us braved the hostile environment to visit Poe's grave. And who can forget the crab sandwiches with those little feet sticking out from under the bun? Yum!

I found the Hugo Awards (which I get very emotional about) to be very disappointing. Blade Runner won, which was thrilling and E.T. and Brown's and Geis' rag were booed. I was encouraged to hear more booing at the Awards since I feel it should be an emotional event. I just wish that people wouldn't boo the fiction. With few exceptions ("Melancholy Elephants" is one -- Gad! What a story!) all the nominated stories have merit and are worthy to be on the ballot. But Alas, if I condone booing in one section of the awards I can't expect people to keep their raspberries to themselves at other times.

At Constellation I also got to meet Al's betrothed, Bonnie. She's a level-headed woman. I don't know what she sees in Zip Dog Al. Must be able to get underneath that solder-encrusted exterior.

As most of you know Alex has quit his job at the Sound Room and is consulting on his own now. He has a major contract from a software developer in California so he commutes back and forth. This week he's in Sedona, Arizonia. The bum! Well, he's paying for his sunshine; he's missing all the leaves turning color.

While I'm typing I'm listening to the MET'S (the opera, not the baseball team) Centennial Celebration Broadcast. It's wonderful. They have 100 of the greatest opera singers singing the Top 40 of opera tunes. What took me so long to find out how great it is? I guess it's like Brussel sprouts; it's a taste you have to acquire.

Marty is once again becoming an extension of his computer. His newest obsession is an IBM PC BASIC preprocessor, called Rascal, which turns BASIC into a language similar to Pascal. We bought him a mouse (hardware, not grayware) and not even wild women and red wine (red women and wild wine?) can lure him away. For those of you who are fortunate enough not to know what all the latest gadgets are, I'll describe a mouse. It's a little box about the size of a cigarett pack that hooks via a long cable into a computer. It sits on a blank section of desk or a tablet about 8 1/2 by 11 inches. What it does is replace the arrow keys on the

Keyboard. One moves the mouse on the table too and on the screen the cursor moves correspondingly. It replaces the need to type all those Keys just to get to the right place on the screen.

I'm busy with the same old stuff: programming, Aikido, working on the house. I received my third belt in Aikido a few months ago (I'm now a green belt-- somewhere between plaid and paisley.) While I struggle with my techniques, Jerome, our instructor, tosses us around as though we were pieces of paper. Usually he doesn't even touch us and we still tumble through the air. We're stripping the rest of the wallpaper off the walls upstairs and repainting. This past weekend we insulated the crawlspace under Marty's bedroom so his feet won't freeze to the floor this winter. As for programming, I'm writing a lot of accounting software and still fighting my way through Pascal (currenty we're even.) But I loave talking about computers in my spare time. If I'm programming all week long I want to occupy my mind with other, MORE INTERESTING THINGS the rest of the time (unlike other people).

I guess that's about all. Keith spent one Sunday afternoon with us, we eat at this tiny italian restaurant every week (you need a place to go to where you order the usual), Farr's new store is doing fine; it's too bad he has no time for anything else, I got to see the uncut version of The Seven Samuri, Misha will be spending Christmas with us, and I should go to bed (have to be rested for the three rounds with Pascal tomorrow.)

Good Night. Write me soon. I'll write when I can.

Renee